

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.

1/20

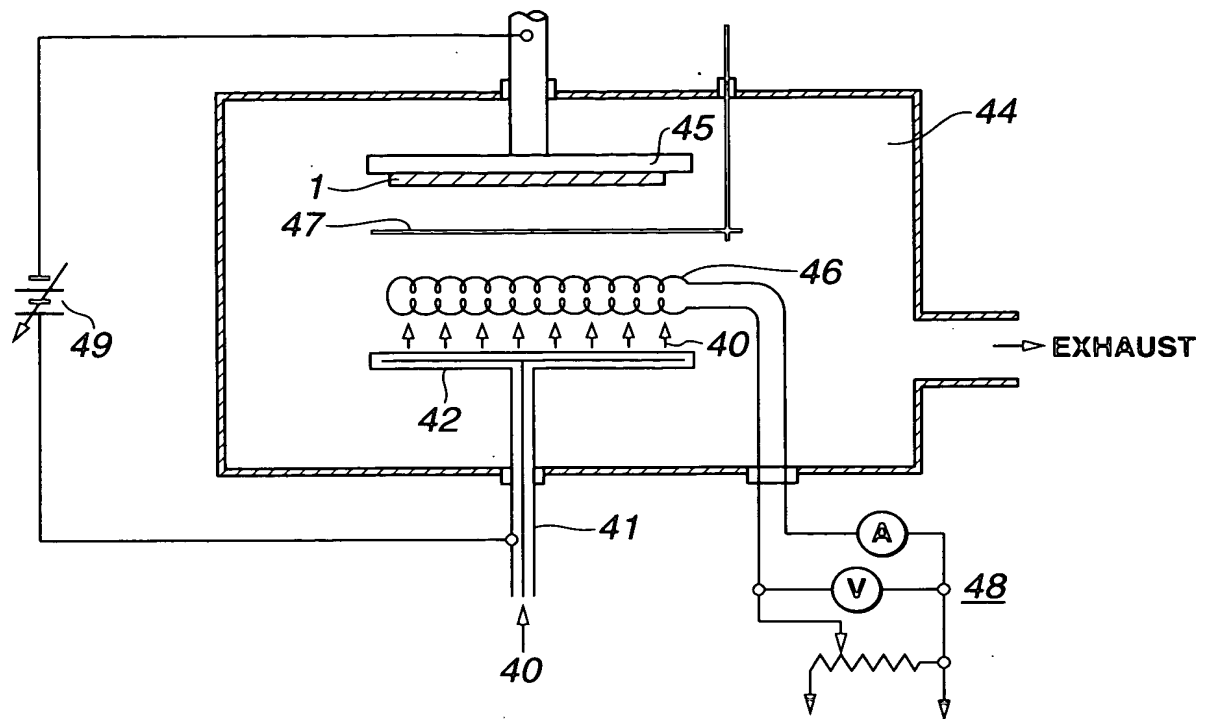


FIG. 1

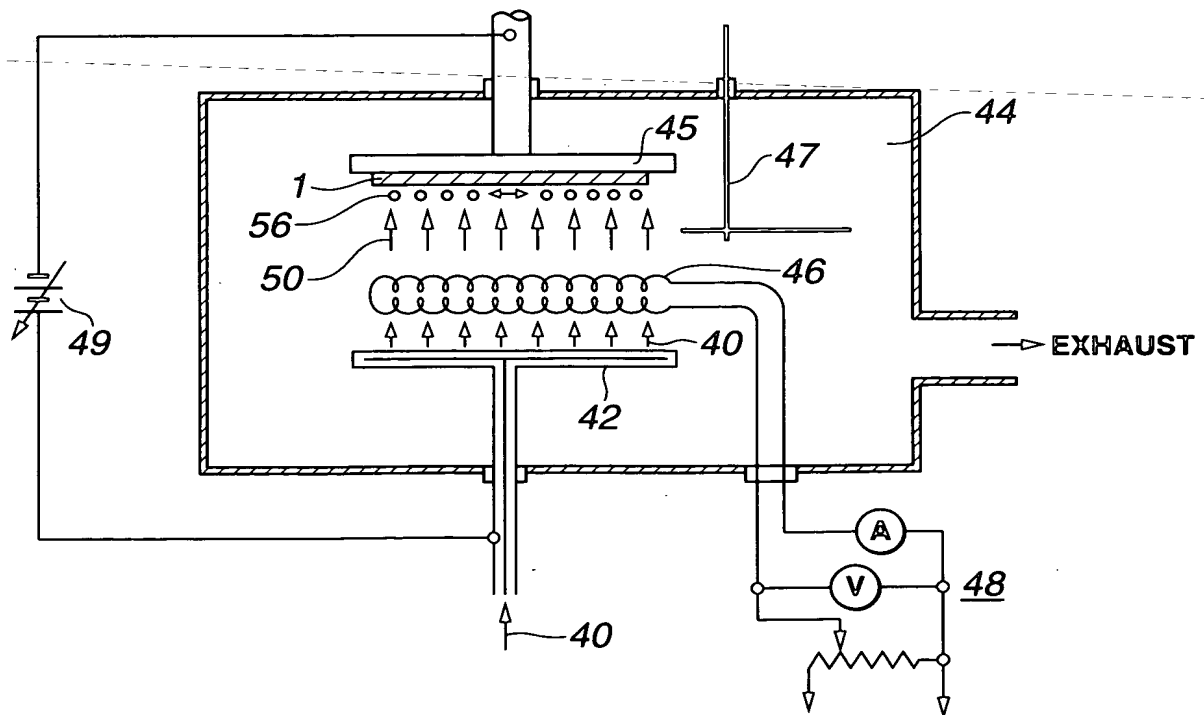


FIG. 2



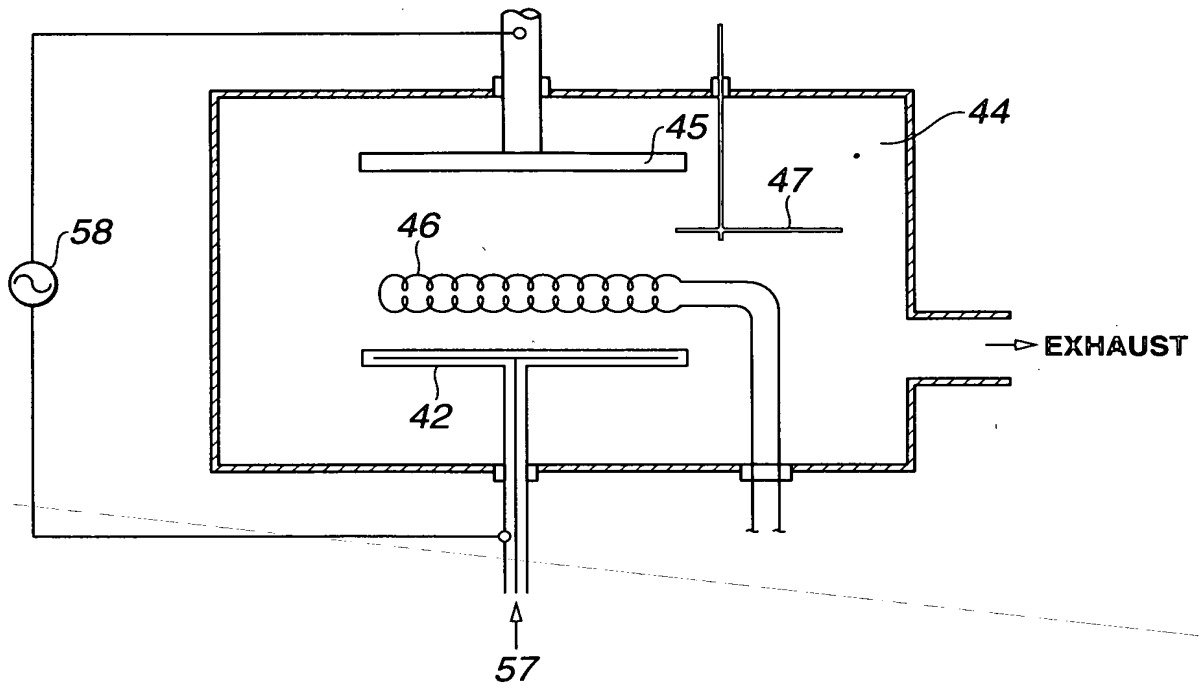


FIG.4

FIG.5A

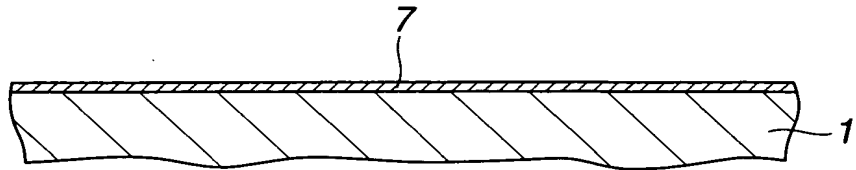


FIG.5B

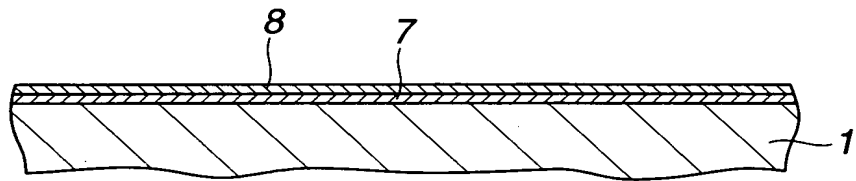


FIG.5C

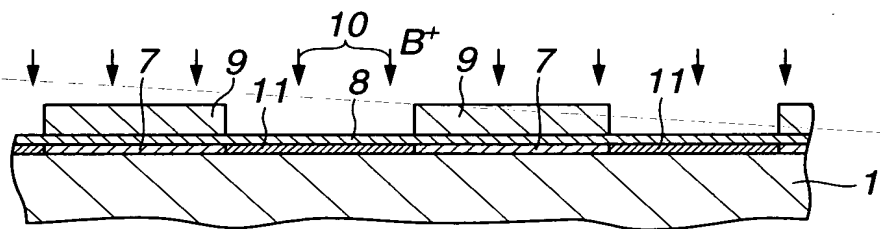


FIG.5D

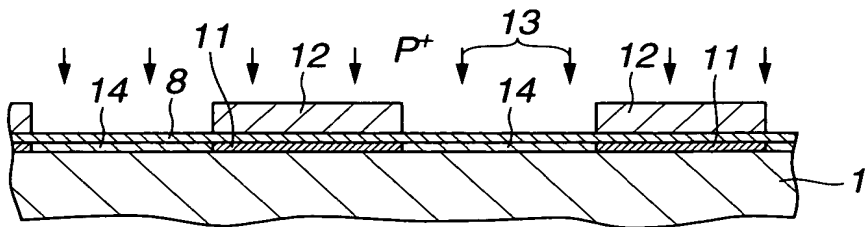


FIG.5F

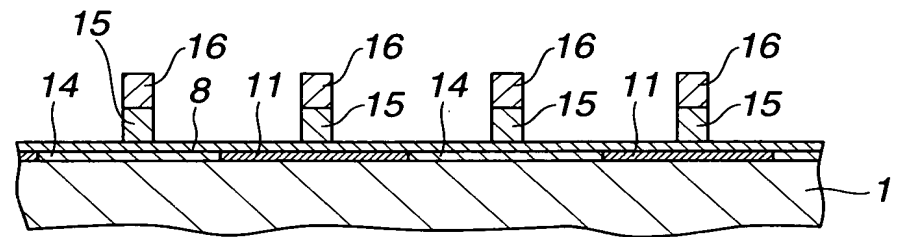


FIG. 5G

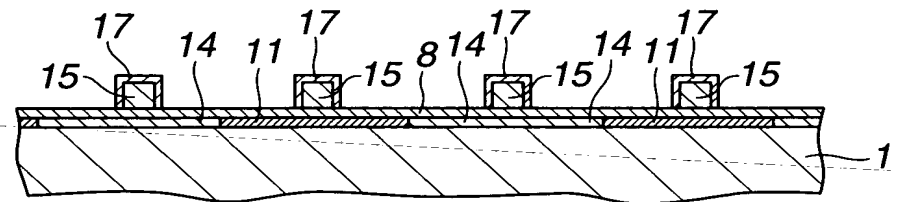


FIG.5H

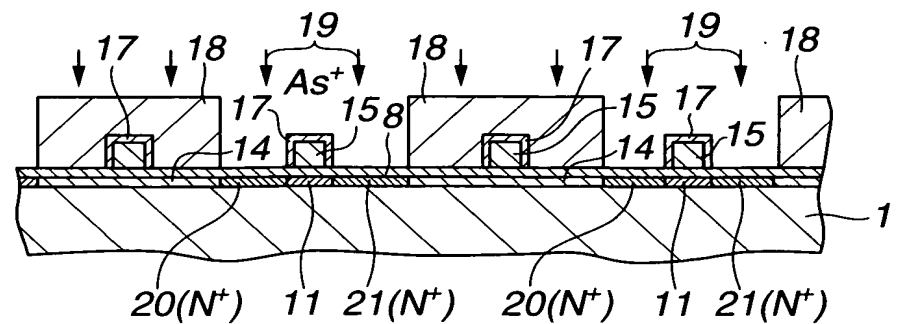


FIG.5 I

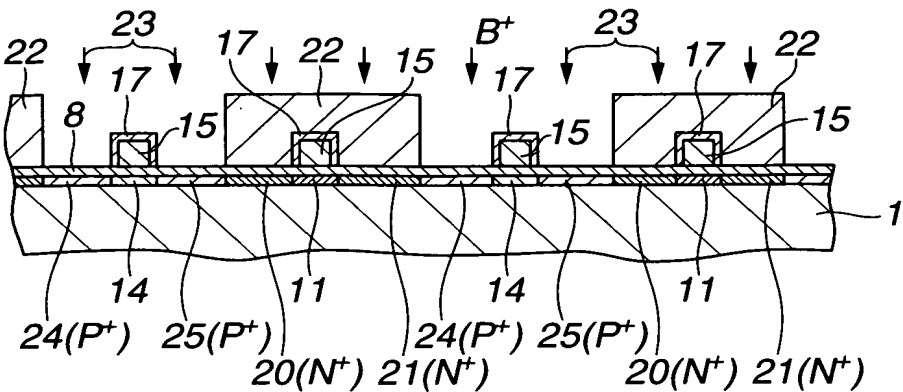


FIG.5J

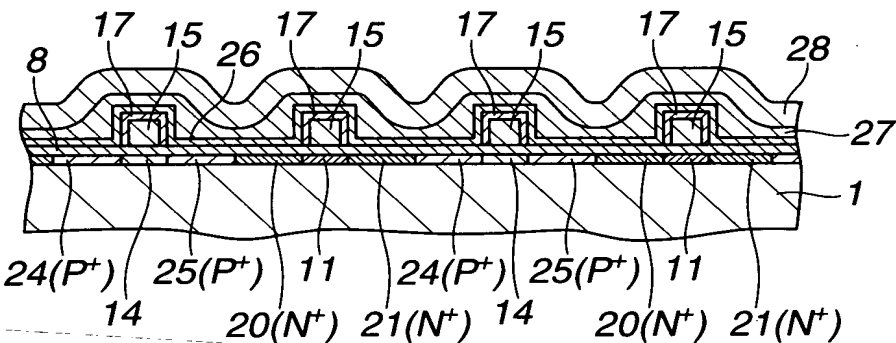
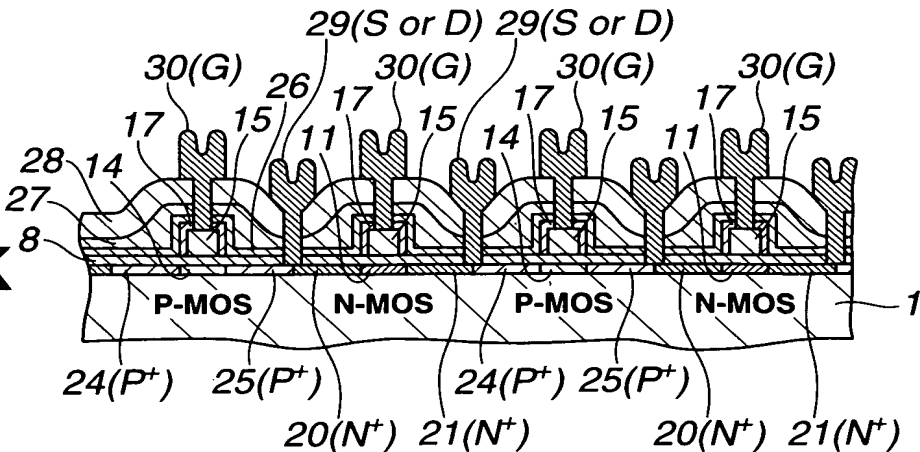


FIG.5K



PIXEL
PORTION

PERIPHERAL
CIRCUIT PORTION

FIG.6A

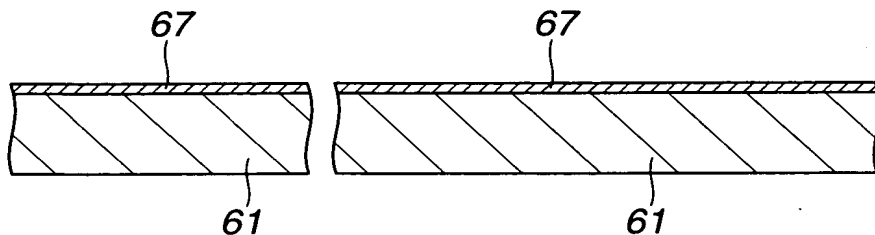


FIG.6B

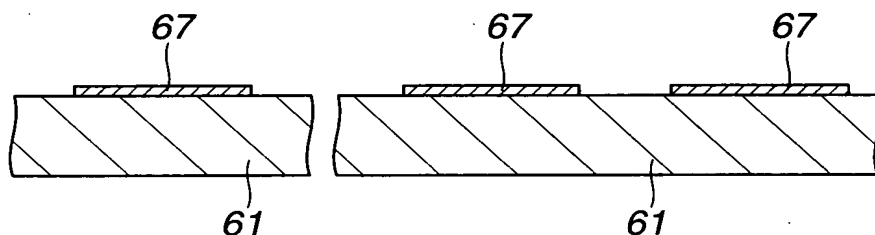


FIG.6C

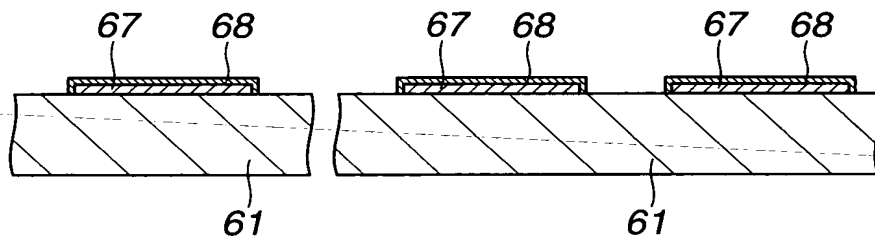


FIG.6D

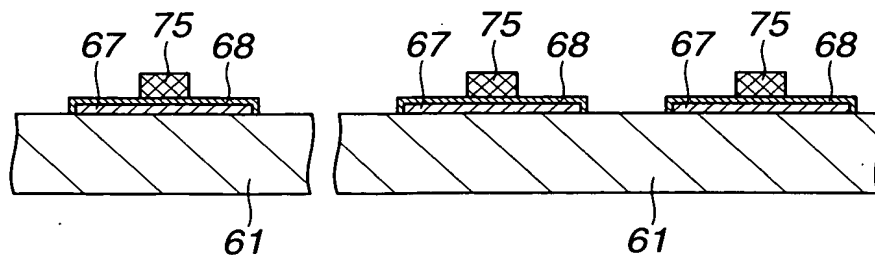
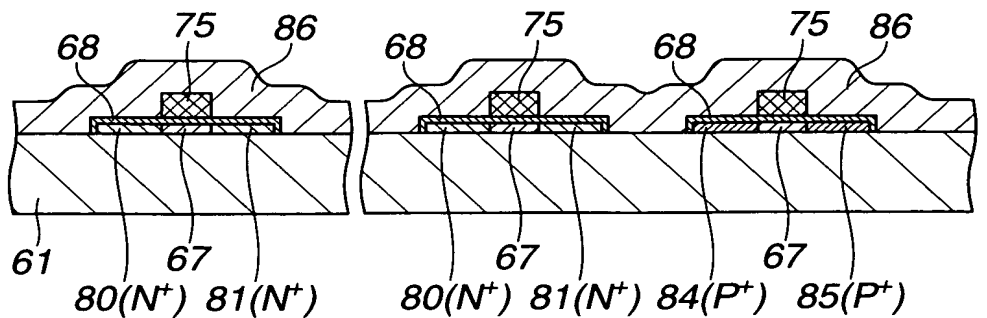
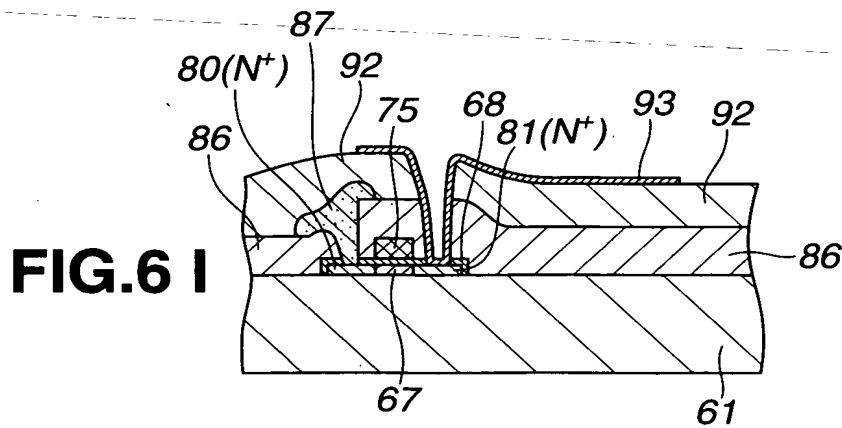
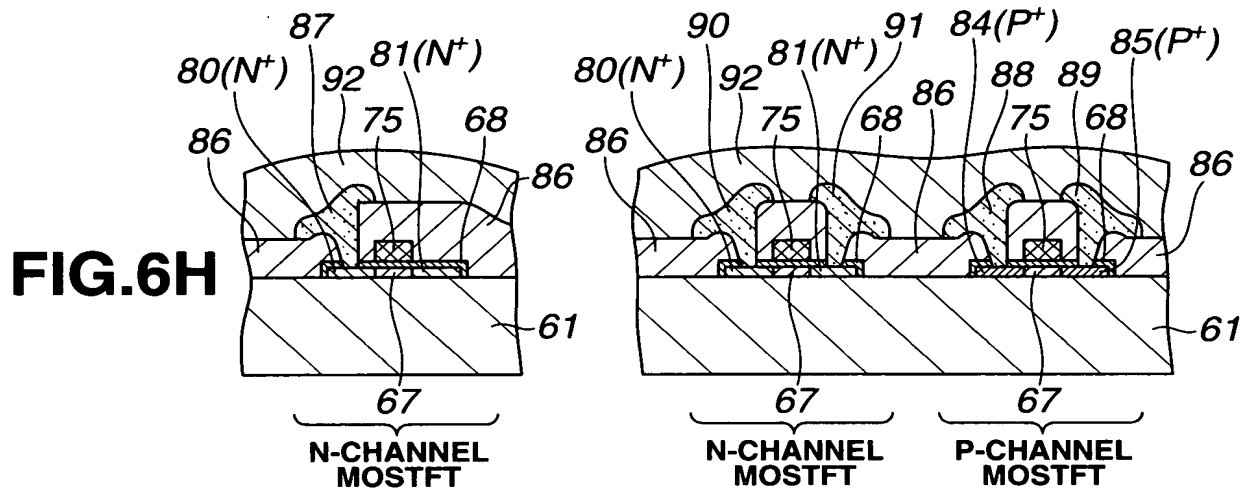


FIG. 6G

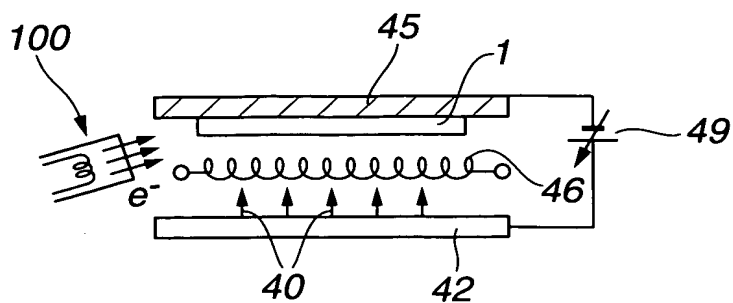
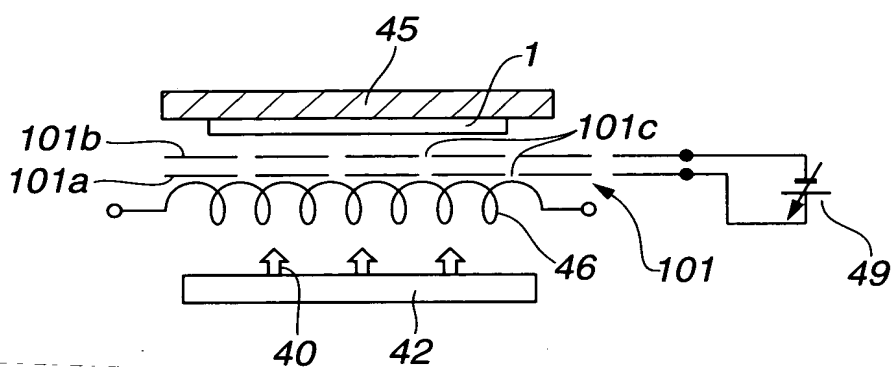
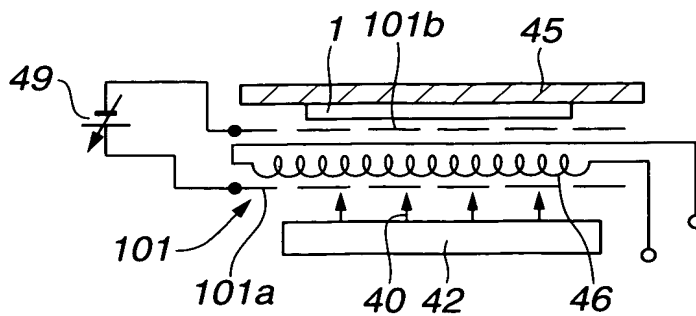


9/20



001101 08 01A.041 1420

10/20

**FIG. 7****FIG. 8****FIG. 9**

11/20

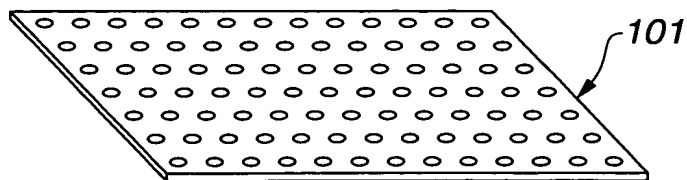


FIG. 10

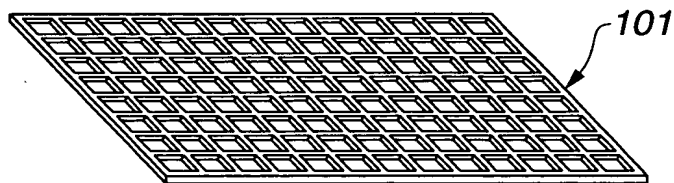


FIG. 11

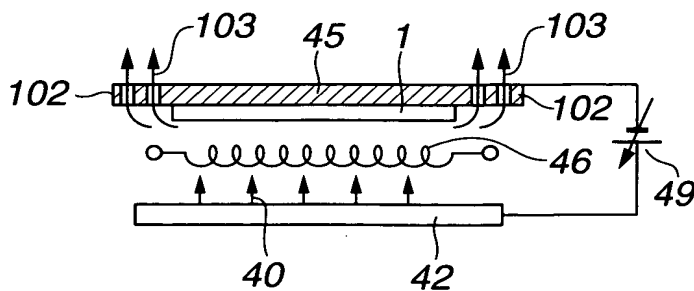


FIG. 12

004077" 03594960

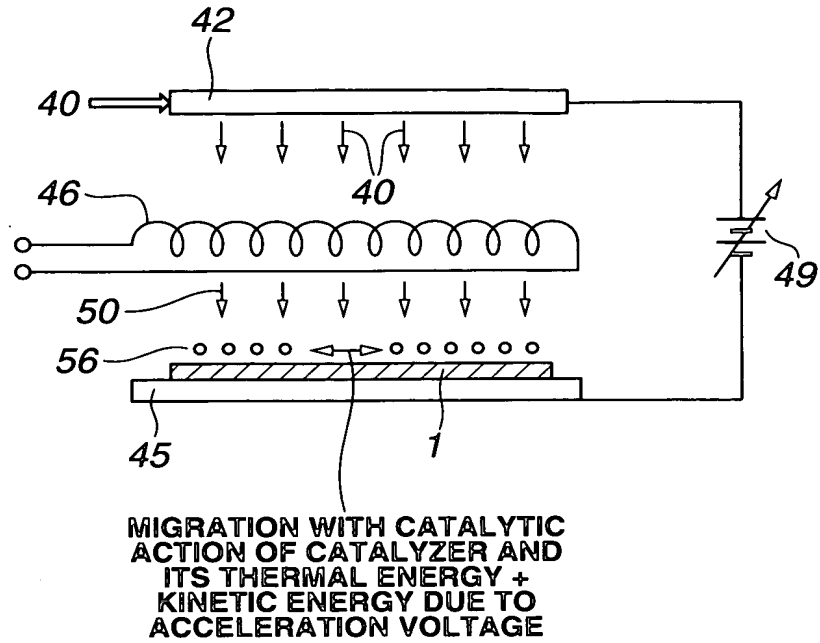


FIG.13

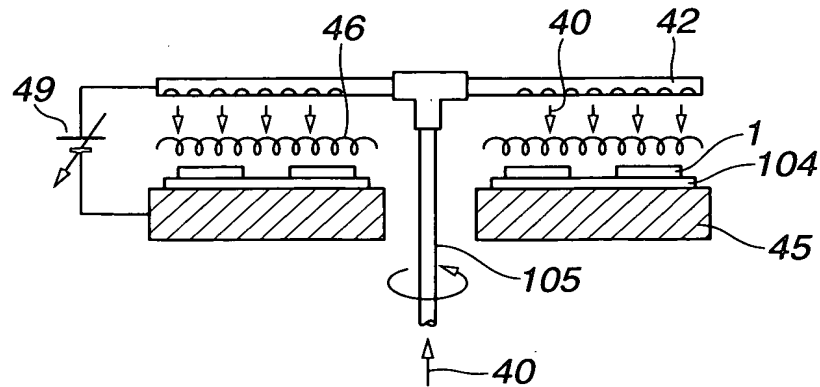


FIG.14

13/20

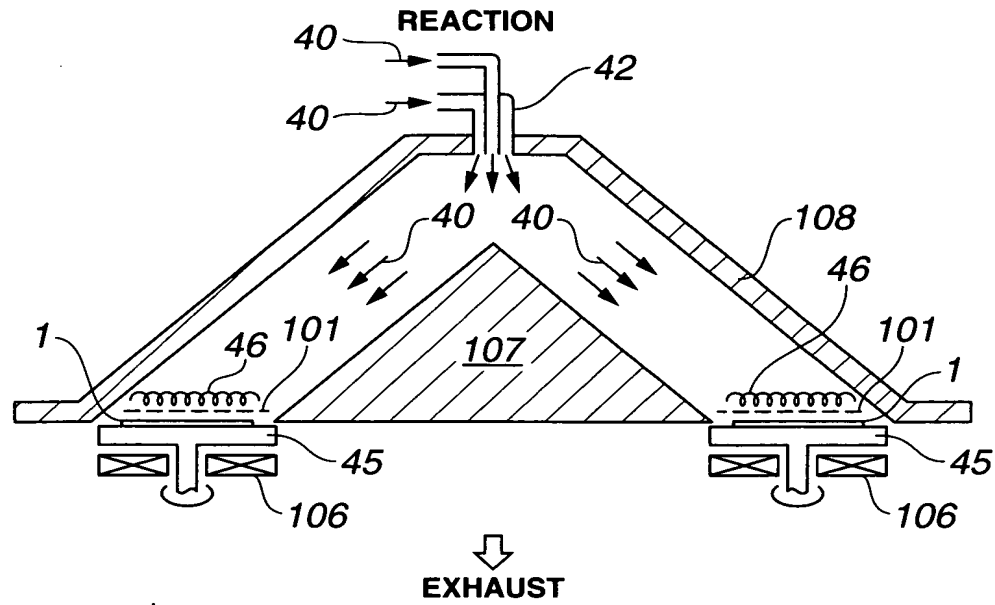


FIG.15

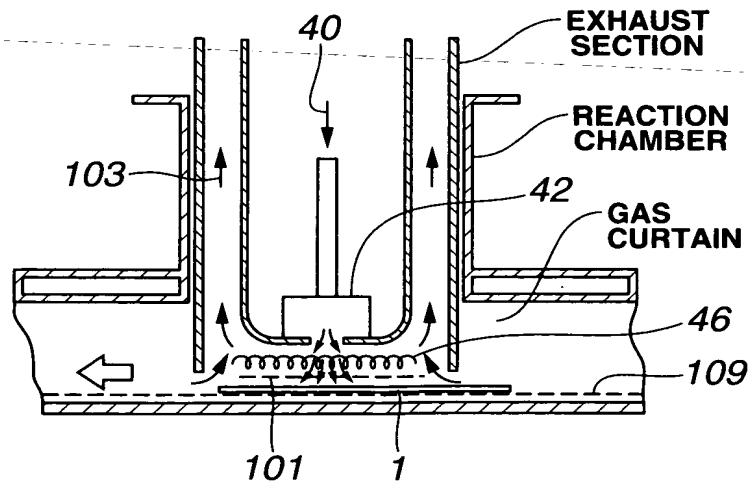


FIG.16

14/20

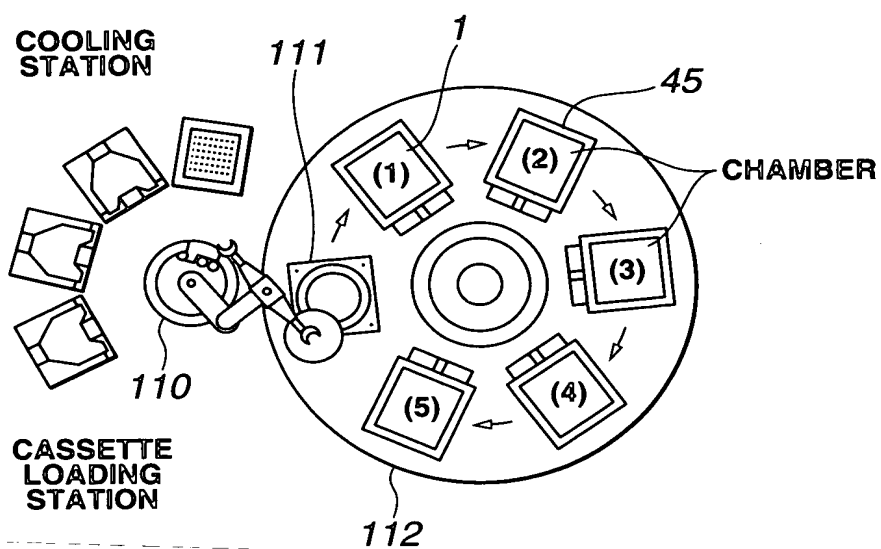


FIG.17

0005430 08 01/00/1999

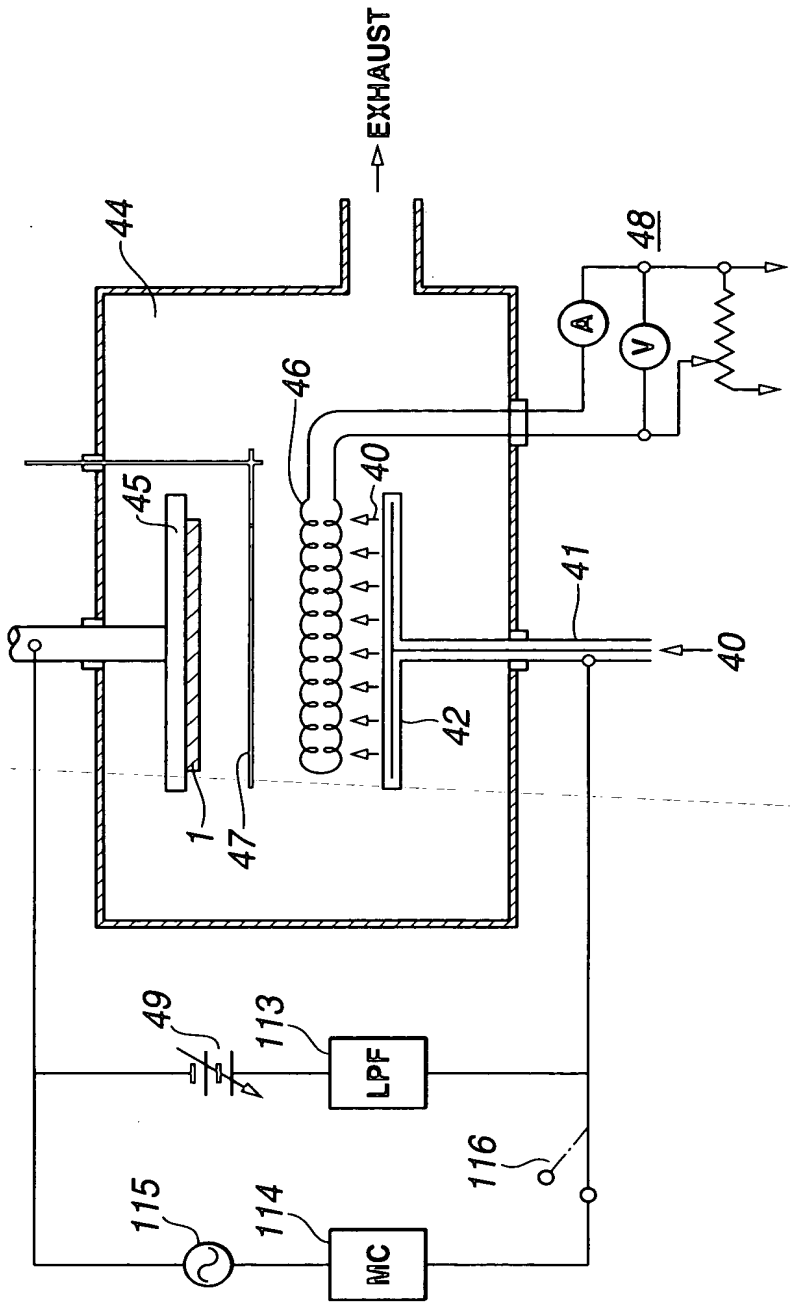


FIG.18

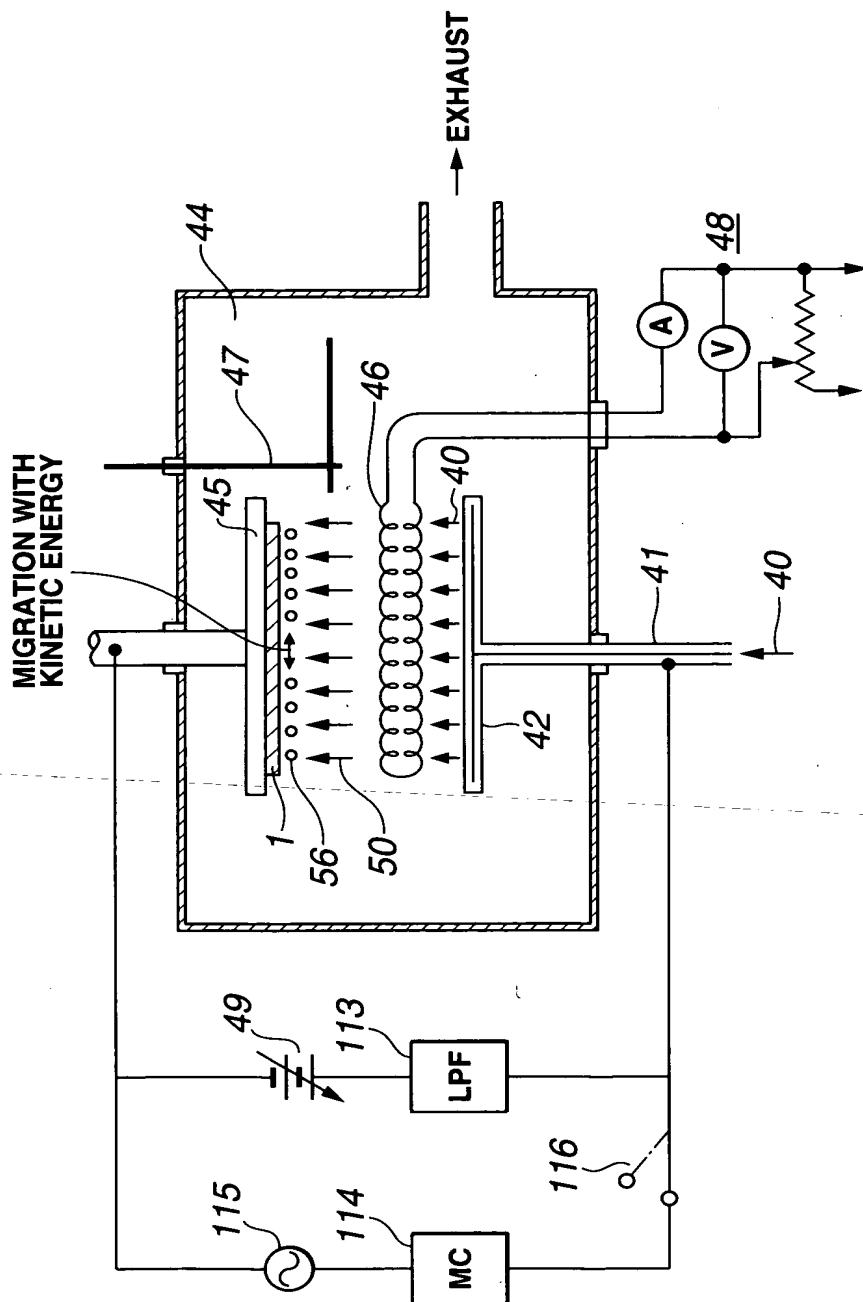


FIG.19

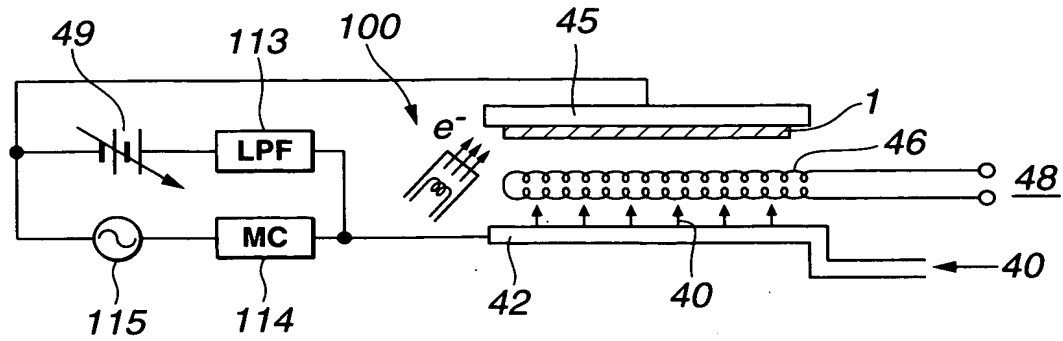


FIG. 20

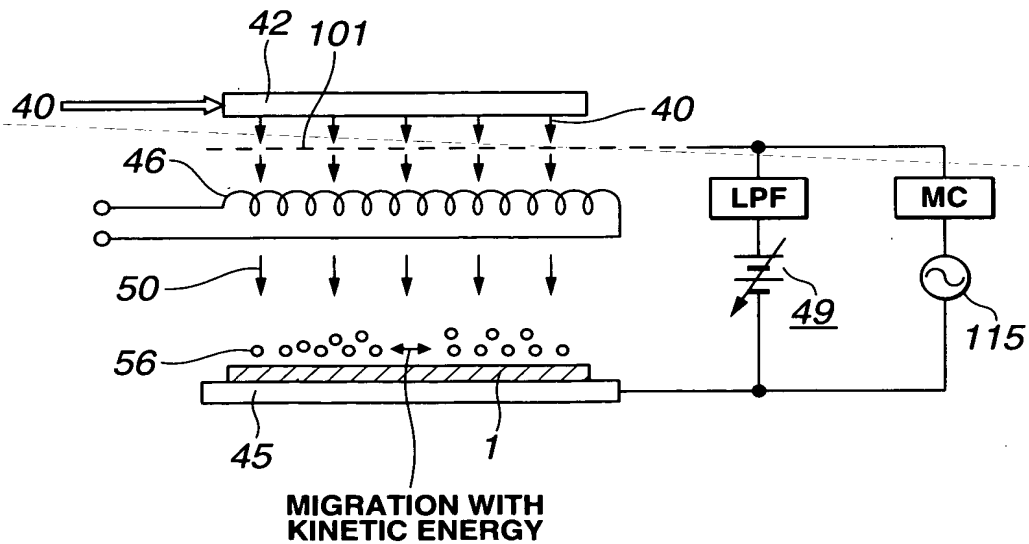


FIG. 21

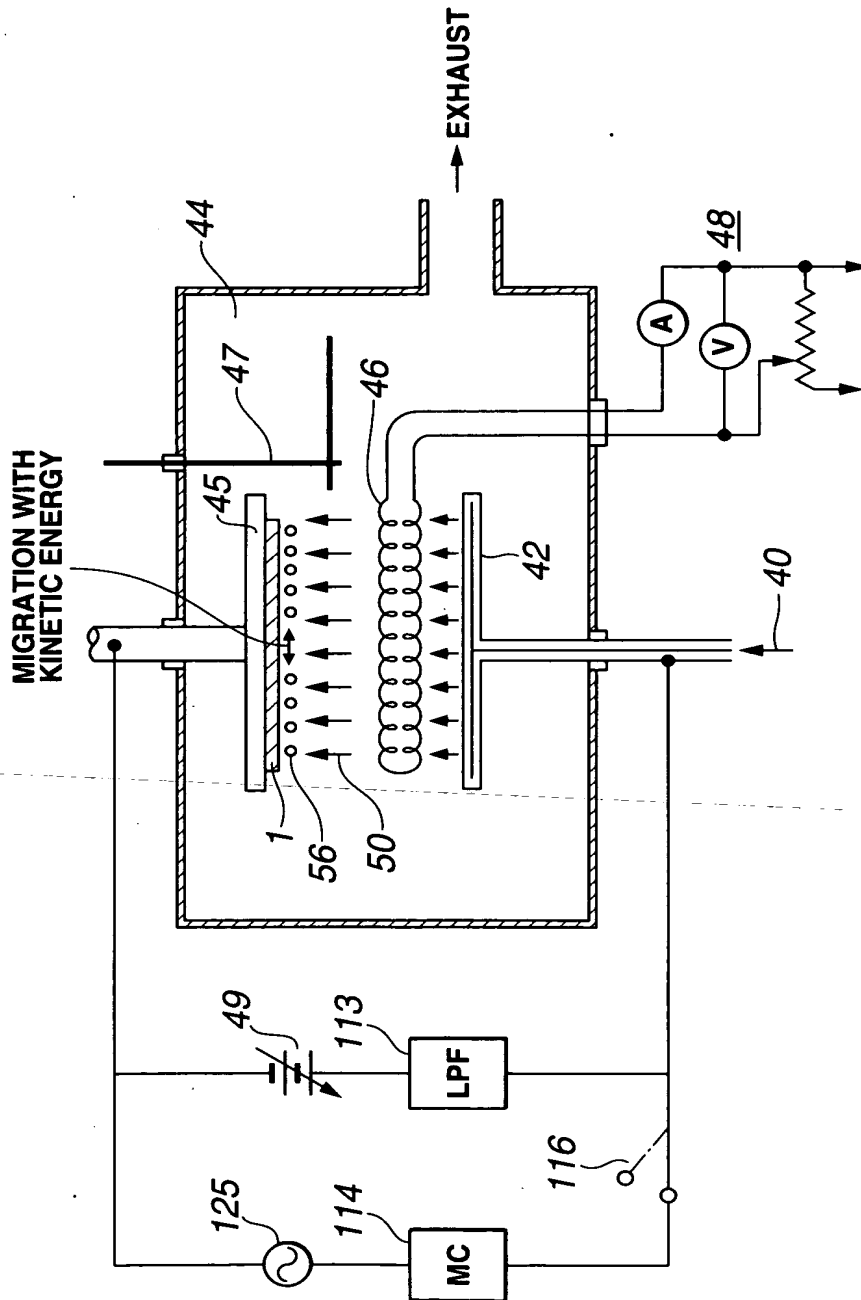


FIG.22

19/20

COMBINATION OF MATERIAL GAS AND FILM TO BE FORMED

PRODUCED FILM	MATERIAL GAS
① Si OR POLYCRYSTAL Si	SiH ₄ , SiHCl ₃ , SiH ₂ Cl ₂ , SiCl ₄ Si ₂ H ₆
② SiO ₂	SiH ₄ , SiHCl ₂ , SiH ₂ Cl ₂ , SiCl ₄ , SiBr ₄ , SiI ₄ , SiF ₄ , Si(OC ₂ H ₅) ₄ , Si(OC ₂ H ₅) ₃ , (C ₂ H ₅)Si(OC ₂ H ₅) ₃ , C ₅ H ₁₁ Si(OC ₂ H ₅) ₃ , C ₆ H ₅ Si(OC ₂ H ₅) ₃ , (CH ₃) ₂ Si(OC ₂ H ₅) ₂ , AND O ₂ , NO, N ₂ O, NO ₂ , CO ₂ +H ₂ , H ₂ O
③ BPSG, BSG, PSG OR AsSG	MIX FOLLOWING GAS WITH MATERIAL GAS OF ② PH ₃ , B ₂ H ₆ , AsH ₃ , PO(OCH ₃) ₃ , B(OCH ₃) ₃ , B(OC ₃ H ₇) ₃
④ SiN _x	MIX NH ₃ , N ₂ H ₄ , N ₂ , WITH SiH ₄ , SiH ₆ , SiHCl ₃ , SiH ₂ Cl ₂ , SiH ₃ Cl, SiCl ₄ , SiBr ₄ ETC. Ar, He, ETC. AS CARRIER GAS
⑤ SiO _x N _y	SAME AS MATERIAL GAS OF ②, ④
⑥ Al	AlCl ₃ , Al(CH ₃) ₃ (TMA), Al(C ₂ H ₅) ₃ (TEA), Al(OC ₃ H ₇) ₃ H ₂ AS REDUCTION GAS
⑦ Al ₂ O _{3-x}	ADD CO ₂ +H ₂ , O ₂ , H ₂ O TO MATERIAL GAS OF ⑥
⑧ In ₂ O ₃	In(CH ₃) ₃ (TMI), In(C ₂ H ₅) ₃ (TEI), AND O ₂ , H ₂ O, CO ₂
⑨ REFRACTORY METAL	FLUORIDE (MoF ₆ , WF ₆), CHLORIDE (MoCl ₅ , WCl ₆ , TaCl ₅ , TiCl ₄ , ZrCl ₄), ORGANIC COMPOUND (Ta(OC ₂ H ₅) ₅ , (PtCl ₂) ₂ (CO) ₃ , W(CO) ₆ , Mo(CO) ₆
⑩ SILICIDE	MIX SILANE-BASED GAS SUCH AS SiH ₄ , Si ₂ H ₆ , ETC. WITH MATERIAL GAS OF ⑨
⑪ TiN	TiCl ₄ + N ₂ (+NH ₃)
⑫ TiON	ADD O ₂ , H ₂ O TO TiCl ₄ + N ₂ (+NH ₃)
⑬ Cu	HEXAFLUOROACETYLACETONATE COPPER (Cu(HFA) ₂) AND C((HFA) ₂ + H ₂ O OTHER MATERIALS OF CHELATE COMPOUND ARE Cu(DPM) ₂ , Cu(AcAc) ₂ , Cu(FOD) ₂ , Cu(PPM) ₂ , Cu(HFA)TMVS
⑭ Al-Si OR Al-Si-Cu	ADD MATERIAL GAS OF ① OR ⑬ TO MATERIAL GAS OF ⑥

* ADD EACH MATERIAL GAS TO HYDROGEN-BASED CARRIER GAS BASED ON H₂ GAS SUCH AS H₂, H₂+Ar, H₂+Ne, H₂+He, H₂+Kr, ETC.

FIG.23

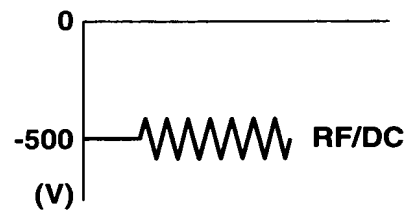
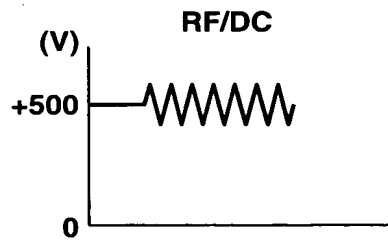
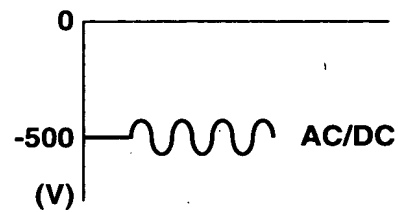
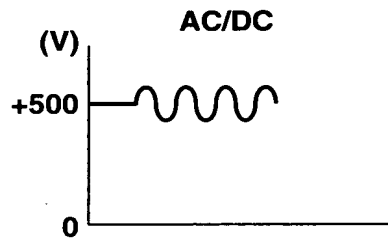
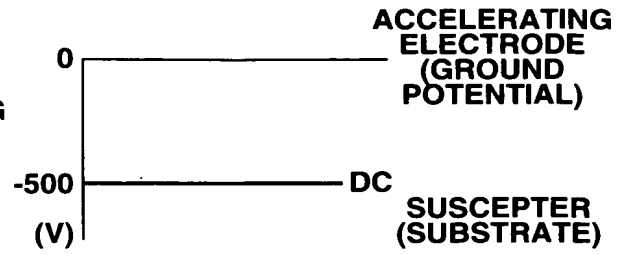
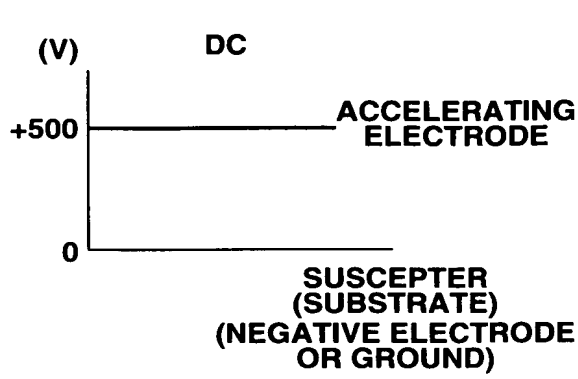


FIG.24A

FIG.24B